

## REMARKS

Applicant respectfully requests reconsideration of the application in view of the remarks below. Claims 1-28 remain pending in the application. Claims 1, 11, 21, and 28 are the independent claims.

### Allowable Subject Matter

Applicant gratefully acknowledges the Examiner's indication that claims 2-9, 12-18, and 22-26 contain allowable subject matter and would be allowable if rewritten in independent form.

### The Claims are Patentable over *Chang*

Claims 1, 10, 11, 19-21, 27, and 28 stand rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,285,351 to Chang (hereinafter "*Chang*"). Applicant respectfully traverses this rejection for the reasons set forth below.

As recited by independent claim 1, a portion of sound data is stored in a memory buffer of a computer. The portion of sound data is *analyzed using heuristics* to identify at least one sound feature from the portion of sound data. At least one haptic effect is executed based on the at least one sound feature, and is associated with the portion of sound data.

As pointed out in Applicant's prior response, filed on April 21, 2003, *Chang* does not disclose analyzing a portion of sound data using heuristics. In fact, *Chang* is entirely silent regarding heuristics.

In the latest Office Action, the Examiner equates "heuristics" to "rules," and states that rules are inherent to *Chang*. In support of a broad interpretation of the term "heuristics" as simply meaning rules, the Examiner has cited U.S. Patent Application Publication No. US 2002/0112035 to Carey et al. (hereinafter "*Carey*"). Applicant respectfully submits, however, that the Examiner has improperly relied on *Carey* to select an overly broad interpretation of the term "heuristics."

M.P.E.P. § 2111.01 discusses the proper standard for interpreting claim terms during examination, stating that they must be given either their meaning as defined in the Specification or their plain meaning:

words of the claim *must* be given their *plain meaning* unless applicant has provided a clear definition in the specification.

When not defined by applicant in the specification, the words of a claim *must* be given their *plain meaning*. In other words, they *must* be read as they would be interpreted by those of ordinary skill in the art. *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342, 60 USPQ2d 1851, 1854 (Fed. Cir. 2001) . . . *Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1299, 53 USPQ2d 1065, 1067 (Fed. Cir. 1999) . . . *In re Sneed*, 710 F.2d 1544, 218 USPQ 385 (Fed. Cir. 1983) . . . *In re Barr*, 444 F.2d 588, 597, 170 USPQ 330, 339 (CCPA 1971). (M.P.E.P. § 2111.01, emphasis added.)

*Carey* is not a proper basis for interpreting the meaning of that term as recited in claim 1. Indeed, the selection of *Carey* cited in the Office Action does not purport to define this term, and provides only parenthetical restatement of what heuristics may mean in *Carey*: “heuristics (i.e., rules, variables, and/or selection algorithms or other rankings or weightings).” (Page 5, ¶ 63.)

To properly interpret the term “heuristics,” as used in claim 1, the Examiner *must* either look to the Specification of the present application or give the term its plain meaning. In the Specification, an “intelligent heuristic” is described as being used to analyze sound data output from a game to identify a feature (e.g., a sound burst or spike in amplitude within a specific frequency range) that indicates a high frequency sound. Once such a feature has been identified, a specific haptic sensation is output based on the feature. (Specification at page 13.) Thus, the interpretation of the term “heuristics” in the Office Action as being merely rules is inaccurate in view of the term’s use in the Specification.

The plain meaning of the term “heuristics” also differs from the interpretation relied upon in the Office Action. Specifically, The American Heritage College Dictionary defines heuristics (in the computer science sense) as, “[r]elating to or using a problem-solving technique in which the most appropriate solution is selected at successive stages of a program for use in the next step of the program.” (The American Heritage College Dictionary, 638 (3d ed. 2000).) The IEEE Standard Dictionary of Electrical and Electronic Terms defines heuristics as, “[p]ertaining to exploratory methods of problem solving in which solutions are discovered by evaluation of the progress made toward the final result,” or “[p]ertaining to experimental, especially trial-and-

error, methods of problem-solving.” (The IEEE Standard Dictionary of Electrical and Electronics Terms, 484 (6th ed. 1997).) A copy of both definitions is attached for the Examiner’s convenience. As can be seen from the above dictionary definitions, the plain meaning of the term “heuristics” differs from the Examiner’s proposed definition as mere generic rules. Therefore, the interpretation of heuristics relied upon in the Office Action is inaccurate.

Moreover, in the latest Office Action, the Examiner opines that the use of heuristics is inherent to *Chang* due to *Chang*’s disclosure of rules. As discussed above, *Chang* discloses rules, but does not disclose heuristics. In addition, for the reasons described below, the Examiner fails to properly establish the inherency of heuristics with respect to *Chang*, and thus *Chang* fails to support the rejection under 35 U.S.C. § 102.

Clear standards have been established by the Court of Appeals for the Federal Circuit regarding establishing that a feature is inherent where the reference is silent concerning the feature:

To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."

In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted, emphasis added). The allocation of the burdens requires that the U.S. Patent and Trademark Office produce the factual basis for rejection of an application under 35 U.S.C. §§ 102 and 103. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (citing In re Warner, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967)). The one who bears the initial burden of presenting a *prima facie* case of unpatentability is the Examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

In this case, the Examiner has failed to meet his burden of establishing that the claimed heuristics is inherent to *Chang*. More specifically, the rules disclosed in *Chang* can be performed with or without heuristics; thus, the missing descriptive matter regarding heuristics is not necessarily present and cannot be inherent. Therefore, the rejection of claim 1 is improper

and untenable. Accordingly, for at least this reason, Applicant respectfully requests withdrawal of the rejection of claim 1. Additionally, Applicant respectfully requests withdrawal of the rejection of claim 10, which depends from claim 1 and is patentable for at least the same reason.

For at least the same reason discussed above, Applicant respectfully submits that independent claims 11, 21, and 28 are patentable over *Chang*, and respectfully requests withdrawal of the rejection of these claims for at least this reason. Additionally, Applicant respectfully requests withdrawal of the rejection of dependent claims 19 and 20, which depend from independent claim 11, and dependent claim 27, which depends from independent claim 21, and which are patentable for at least the same reason.

### Conclusion

All rejections having been addressed, Applicants respectfully submit that the present application is in condition for allowance, and earnestly solicit a Notice of Allowance, which is believed to be in order. Should the Examiner have any questions regarding this communication, or the application in general, he is invited to telephone the undersigned at 703-456-8108.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§ 1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

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Cooley Godward LLP  
ATTN: Patent Group  
One Freedom Square  
Reston Town Center  
11951 Freedom Drive  
Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

Respectfully submitted,  
**COOLEY GODWARD LLP**

By: Philip W. Marsh  
Philip W. Marsh  
Reg. No. 46,061

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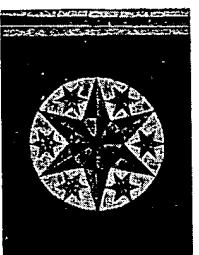
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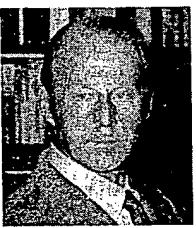
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Thor Heyerdahl

different species: a *heterologous graft*. 2. Of or relating to cytologic or histological elements not normally occurring in a body part. 3. Immunologically related but not identical. Used of certain cells and antiserums. [*HETERO-* + Gk. *logos*, word, relation; see *-LOGY* + *-OUS*.] — *het'er-ol'i/o-gous* *ly* *adv*.

**het'er-ol'ogy** (hēt'ə-rōl'ə-jē) *n*. Lack of correspondence between body parts, as in structure, due to different origins.

**het'er-ol'y-sis** (hēt'ə-rōl'ē-sis, -rō-lī-sis) *n*, *pl.* *-ses* (-sēz'). 1. *Biol.* Dissolution of cells or proteins in one species by the action of lysins or enzymes of another. 2. *Chem.* An organic reaction in which the breaking of bonds leads to the formation of ion pairs. — *het'er-ol'ytic* (-rō-līt'ik) *adj*.

**het'er-on'erous** (hēt'ə-rōn'əs) *adj*. Having unequal or differing parts within the same structure or similar structures.

**het'er-o-mor'phic** (hēt'ə-rō-mōr'fik) *adj*. 1. Having different forms at different periods of the life cycle. 2. Nonstandard in size or structure. — *het'er-o-mor'phism* *n*.

**het'er-on'o-mous** (hēt'ə-rōn'ə-məs) *adj*. 1. Subject to external or foreign laws or domination; not autonomous.

2. *Biol.* Differing in development or manner of specialization. [*HETERO-* + Gk. *nomos*, law; see *-NOMY* + *-OUS*.] — *het'er-on'o-mous* *ly* *adv*.

**het'er-o-nym** (hēt'ə-rō-nīm') *n*. One of two or more words with identical spellings but different meanings and pronunciations, such as *row* (a series arranged in a line), pronounced (rō), and *row* (a fight), pronounced (rōu).

**het'er-on'y-mous** (hēt'ə-rōn'ē-məs) *adj*. 1. Being, relating to, or of the nature of a heteronym. 2. Being different names or terms but having correspondence or relationship, as *mother* and *daughter*. [*< LGk. heterónymos* < Gk., with a different denominator: Gk. *hetero*, *hetero*- + Gk. *onoma*, name; see *nō-men*-.]

**het'er-o-pho'ny** (hēt'ə-rōfō'ne) *n*. *Mus.* The simultaneous playing or singing of one melody by different instruments or singers. — *het'er-o-pho'nic* (-rō-fōn'ik) *adj*.

**het'er-o-phyl'ous** (hēt'ə-rō-fil'ōs) *adj*. Having dissimilar leaves on one plant. — *het'er-o-phyl'ly* *n*.

**het'er-o-phyle** (hēt'ə-rō-fil') *n*. A plant, as a parasite, that feeds on other organisms. — *het'er-o-phyl'ic* (-fīt'ik) *adj*.

**het'er-o-plas'ty** (hēt'ə-rō-plās'tē) *n*, *pl.* *-ties*. The surgical grafting of tissue from one individual or species to another. — *het'er-o-plas'tic* *adj*.

**het'er-o-ploid** (hēt'ə-rō-ploid') *adj*. Having a chromosome number that is not a whole-number multiple of the haploid chromosome number for that species. — *het'er-o-ploid* *n*. — *het'er-o-ploid'y* *n*.

**het'er-o-po'terous** (hēt'ə-rō-pōt'ōs) *adj*. Of or belonging to the hemipterous insect suborder Heteroptera, which includes the true bugs, marked by differing forewings and hind wings.

**het'er-o-sex'ism** (hēt'ə-rō-sēk'sēz'm) *n*. Discrimination against people who are homosexual or bisexual by people who are heterosexual. — *het'er-o-sex'ist* *n*.

**het'er-o-sex'u'al** (hēt'ə-rō-sēk'shōō-əl) *adj*. 1. Sexually oriented to persons of the opposite sex. 2. Of or relating to different sexes. — *n*. A heterosexual person. — *het'er-o-sex'u'al* *ly* *adv*.

**het'er-o-sex'u'al-i'ty** (hēt'ə-rō-sēk'shōō-əl'ē-tē) *n*. 1. Sexual orientation to persons of the opposite sex. 2. Sexual activity with another of the opposite sex.

**het'er-o-sis** (hēt'ə-rō-sis) *n*. See *hybrid vigor*. [*LGk. heterosis*, alteration, alteration of Gk. *heteroisiosis* < *heteroiōs*, to alter < *heteroiōs*, different in kind < *heteros*, other. See *HETERO*-.] — *het'er-o'tic* (-rōt'ik) *adj*.

**het'er-o-spo'rous** (hēt'ə-rō-spo'rōs, -spōr'ēs, hēt'ə-rōs-pōr'ōs) *adj*. Producing two types of spores differing in size and sex. — *het'er-o-spo'ry* *n*.

**het'er-o-tax'i** (hēt'ə-rō-tāk'sēs) also **het'er-o-tax'i'a** (hēt'ə-rō-tāk'sē-sə) *n*, *pl.* *-tax'ies* (-tāk'sēz) also *-tax'ies* or *-tax'i'as*. Abnormal structural arrangement, as of body parts. — *het'er-o-tac'tic* (-tāk'tik) *adj*.

**het'er-o-thal'lic** (hēt'ə-rō-thāl'lik) *adj*. Producing male and female gametangia in different structures or plants, as in some algae and fungi. — *het'er-o-thal'lism* *n*.

**het'er-o-to'pi'a** (hēt'ə-rō-tō-pē) also **het'er-o-to'pi** (hēt'ə-rō-tō-pē) *n*. Moving of an organ or other body part to an abnormal location. — *het'er-o-top'ic* (-tōp'ik) *adj*.

**het'er-o-troph** (hēt'ə-rō-trōf') *n*. An organism that cannot synthesize its own food and is dependent on complex organic substances for nutrition. [*HETERO-* + Gk. *trophos*, feeder; see *-TROPH*.] — *het'er-o-tro'phic* *adj*. — *het'er-o-tro'phi'cal* *ly* *adv*. — *het'er-o-tro'ro'phy* (-rōf'ē) *n*.

**het'er-o-typ'ic** (hēt'ə-rō-typ'ik) also **het'er-o-typ'i'cal** (-i-kāl) *adj*. 1. *Biol.* Of, relating to, or being the reduction division of meiosis. 2. Of a different type or form.

**het'er-o-zig'o-sis** (hēt'ə-rō-zī-gō'sis) *n*. 1. The formation of a zygote by the union of genetically different gametes. 2. The condition of being a heterozygote.

**het'er-o-zig'o-gote** (hēt'ə-rō-zī-gōt') *n*. An organism that has different alleles at a particular gene locus on homologous chromosomes.

**het'er-o-zig'o-gous** (hēt'ə-rō-zī-gōs) *adj*. 1. Having different

alleles at one or more corresponding chromosomal loci. 2. Of or relating to a heterozygote.

**het'h** (khēt, khēs) *n*. The eighth letter of the Hebrew alphabet. [*Heb. heth*.]

**het'man** (hēt'mān) *n*, *pl.* *-mans*. See *ataman*. [*Ukrainian het'mān* < Pol. *hetman* < Ger. dial. *hetmann*, captain; akin to Ger. *Haupmann* < MHG. *houbetman* : OHG. *houbit*, head; see *kaput*\* + OHG. *man*, man; see *FUGLEMAN*.]

**heu'land-ite** (hyōō'lan-dit') *n*. A white, red, or yellow zeolite mineral,  $\text{Ca}_2\text{Al}_2\text{O}_7 \cdot 6\text{SiO}_2 \cdot 5\text{H}_2\text{O}$ . [After Henry *Heuland*, 19th-cent. British mineralogist.]

**heu'ris'tic** (hyōō-ris'tik) *adj*. 1. Of or relating to a usu. speculative formulation guiding the investigation or solution of a problem. 2. Of, relating to, or constituting an educational method in which students learn through their own investigations. 3. *Comp. Sci.* Relating to or using a problem-solving technique in which the most appropriate solution is selected at successive stages of a program for use in the next step of the program. — *n*. 1. A heuristic method or process. 2. *heuristics*. (*used with a sing. v.*) The study and application of heuristic methods and processes. [*< Gk. heuriskein*, to find.]

**heu'ris'ti-cal** *ly* *adv*. — *heu'ris'ti-cal* *ly* *adv*.

**heu'oo** *v*. *hewed*, *hewn* (hyōōn) or *hewed*, *hew-ing*, *hews*. — *tr. v*. 1. To make or shape with or as if with an ax. *b. hew a path*. 2. To cut down with an ax; fell: *hew an oak*. 3. To strike or cut; cleave. — *intr. v*. 1. To cut something by repeated blows, as with an ax. 2. To adhere or conform strictly; hold. [*ME heuen* < OE *hēawan*. See *kau*\*.] — *hew'er* *n*.

**HEW** *abbr.* Department of Health, Education, and Welfare. **hex<sup>1</sup>** (hēks) *n*. 1. An evil spell; a curse. 2. One that brings bad luck. — *tr. v. hexed, hex-ing, hex'es*. 1. To put a hex on. 2. To bring or wish bad luck to. [*Penn. Du.* < Ger. *hexen*, to hex < *Hexe*, witch < MHG. *hecse* < OHG. *hexa*, *hex* + *er*.]

**hex<sup>2</sup>** (hēks) *adj*. Hexagonal. Used of hardware. **hex<sup>3</sup>** *abbr.* Hexagon; hexagonal.

**hexa-** or **hex-** *pref*. 1. Six: *hexagram*. 2. Containing six atoms, molecules, or groups: *hexose*. [*Gk. < hex*, six. See *(sw)eks\**.]

**hex'a-chlo-ro-eth'ane** (hēk'sa-klōr'ō-ēth'ān', -klōr') also **hex'a-chlor-eth'ane** (-klōr-ēth'ān', -klōr-) *n*. A colorless crystalline compound,  $\text{Cl}_3\text{CCl}_3$ , used as a camphor substitute and in explosives and veterinary medicine.

**hex'a-chlo-ro-phene** (hēk'sa-klōr'ō-fēn', -klōr') *n*. An almost odorless white powder,  $(\text{C}_6\text{H}_5\text{Cl}_3\text{O})_2\text{CH}_2$ , used as a disinfectant and an antibacterial agent in soaps. [*HEXA* + *CHLORO* + *PHEN(ol)*.]

**hex'a-chord** (hēk'sa-kōrd') *n*. *Mus.* A sequence of six tones with a semitone between the third and fourth tones, the others being whole tones, that was used in medieval music. [*Med. Lat. hexachordum* < Lat. *hexachordos*, having six strings or stops: Gk. *hexa*, hexa- + Gk. *-khordos*, string, note (< *khordē*; see *CORD*).]

**hex'ad** (hēk'sād') *n*. A group or series of six. [*LLat. hexas*, hexad, the number six < Gk. < hex, six. See *(sw)eks\**.] — *hex'ad'ic* (hēk'sād'ik) *adj*.

**hex'a-dec'i'mal** (hēk'sā-de'sēz'māl) *adj*. 1. Of, relating to, or based on the number 16: *the hexadecimal number system*. 2. Of or relating to sixteenths. — *n*. A sixteenth.

**hex'a-gon** (hēk'sā-gōn') *n*. A polygon having six sides.

**hex'a-go'nal** (hēk'sā-gāl'sā-nāl) *adj*. 1. Having six sides. 2. Containing or shaped like a hexagon. 3. *Mineral*. Having three equal axes intersecting at angles of 60° in one plane and one axis of variable length that is perpendicular to the others. — *hex'a-go'nal* *ly* *adv*.

**hex'a-gram** (hēk'sā-gram') *n*. 1. A six-pointed star formed by extending each of the sides of a regular hexagon into equilateral triangles. 2. A figure of six lines or sides.

**hex'a-he'dron** (hēk'sā-hē'drōn) *n*, *pl.* *-drons* or *-dra*. A polyhedron, such as a cube, that has six faces. — *hex'a-he'dral* (-drāl) *adj*.

**hex'am'er'ism** *n*. — *hex'am'er'ism* *n*.

**hex'am'e'ter** (hēk'sā-mēt'ēr) *n*. 1. A line of verse consisting of six metrical feet. 2. In classical prosody, a line in which the first four feet are either dactylic or spondaic, the fifth is dactylic, and the sixth is spondaic. [*Lat. < Gk. hexametros*, having six metrical feet: *hexa*, hexa- + *metron*, meter; see *METER*.] — *hex'a-met'ric* (hēk'sā-mēt'rik), *hex'a-met'ri'cal* (-rē-kāl) *adj*.

**hex'a-met'ry** (hēk'sā-mēt'ri) *n*. See *methenamine*.

**hex'a-ne** (hēk'sā-nā') *n*. A flammable liquid,  $\text{C}_6\text{H}_{14}$ , derived from the fractional distillation of petroleum and used as a solvent and a working fluid in some thermometers.

**hex'a-pod** (hēk'sā-pōd') *n*. A six-legged arthropod of the class Insecta (formerly Hexapoda); an insect. — *adj*. 1. Of or belonging to the class Insecta. 2. Having six legs or feet. [*< NLat. Hexapoda*, class name: Gk. *hexa*, hexa- + NLat. *-poda*, -pod.] — *hex'ap'o-dous* (hēk'sā-pō-dōs) *adj*.

**Hex'a-teuch** (hēk'sā-tōōk', -tyōōk') *n*. *Bible*. The first six

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Jane Radatz, Chair

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ers. *Contrast*: homogeneous computer network. (C) 610.7-1995

**heterogeneous LAN** A network of interconnected LANs of mixed media access control types. *Contrast*: homogeneous LAN. (C) 610.7-1995

**heterojunction (fiber optics)** A junction between semiconductors that differ in their doping level conductivities, and also in their atomic or alloy compositions. *See also*: homojunction. (Std100) 812-1984w

**heteropolar machine (rotating machinery)** A machine having an even number of magnetic poles with successive (effective) poles of opposite polarity. *See also*: asynchronous machine; direct-current commutating machine. (C) 610.7-1995 (PE) [9]

**heuristic (1)** Pertaining to exploratory methods of problem solving in which solutions are discovered by evaluation of the progress made toward the final result. *See also*: algorithm. (C/MIL) [2], [20], [85]

**(2) (modeling and simulation)** Pertaining to experimental, especially trial-and-error, methods of problem-solving. *Note*: The resulting solution may not be the most desirable solution to the problem. (C) 610.3-1989

**Hevea rubber** Rubber from the *Hevea brasiliensis* tree. *See also*: insulation. (Std100)

**Hewlett-Packard Graphics Language (HPGL)** A page description language used by many laser printers. (C) 610.13-1993

**Hewlett-Packard Printer Control Language** A page description language used in many laser printers. (C) 610.13-1993

**hex** *See*: hexadecimal

**hexadecimal (A) (mathematics of computing)** Pertaining to a selection in which there are sixteen possible outcomes. *Synonym*: sexadecimal. (B) *(mathematics of computing)* Pertaining to the numeration system with a radix of 16. *Synonym*: sexadecimal. (C) 1084-1986w

**hexadecimal character string** A sequence of characters from the set of hexadecimal digits, preceded by the two characters 0x (zero followed by a lowercase "x"). Hexadecimal character strings shall consist only of the following characters:

0 1 2 3 4 5 6 7 8 9 A B C D E F x  
Within software definition files of exported catalogs, all such strings shall be encoded using IRV. (C/PA) 1387.2-1995

**hexadecimal digit** A numeral used to represent one of the 16 digits in the hexadecimal numeration system; 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, or F. (C) 1084-1986w

**hexadecimal notation** Any notation that uses the hexadecimal digits and the radix 16. (C) 1084-1986w

**hexadecimal number (A)** A quantity that is expressed using the hexadecimal numeration system. (B) Loosely, a hexadecimal numeral. (C) 1084-1986w

**hexadecimal number system\*** *See*: hexadecimal numeration system. \* Deprecated.

**hexadecimal numeral** A numeral in the hexadecimal numeration system. For example, the hexadecimal numeral 17 is equivalent to the decimal numeral 23. (C) 1084-1986w

**hexadecimal numeration system** The numeration system that uses the hexadecimal digits and the radix 16. *Synonym*: hexadeciml system. (C) 1084-1986w

**hexadecimal point** The radix point in the hexadecimal numeration system. (C) 1084-1986w

**hexadecimal system** *See*: hexadecimal numeration system.

**hexadecimal-to-decimal conversion** The process of converting a hexadecimal numeral to an equivalent decimal numeral. For example, hexadecimal 8B.4 is converted to decimal 139.25. (C) 1084-1986w

**hexlet (1)** Sixteen bytes (128 bits) of data.

**(2)** A 16-byte data format or data type. The name hexadeclet would more accurately describe these 16-byte formats, but

for notational convenience this abbreviated term is used throughout this standard. (C/MM) 1596.5-1993

**hexode** A six-electrode electron tube containing an anode; a cathode, a control electrode, and three additional electrodes that are ordinarily grids. (ED) 161-1971w

**HF** *See*: high frequency.

**HFC** *See*: horizontal footcandles.

**HF radar** *See*: high-frequency radar.

**H-frame** *See*: crossing structure.

**HH** *See*: header hub.

**hickey (A)** A fitting used to mount a lighting fixture in an outlet box or on a pipe or stud. *Note*: It has openings through which fixture wires may be brought out of the fixture stem. (B) A pipe-bending tool. (EEC/PE) [119]

**HID** Abbreviation for high-intensity discharge. *See also*: high-intensity discharge lamp; high-intensity discharge lamps.

**HIDAM** *See*: hierarchical indexed direct access method.

**hidden line** A line or line segment in a three-dimensional display image that is not visible because of the presence of surfaces closer to the viewer. *Note*: Such a line may be left invisible, or may be displayed as a dashed or dotted line to enhance the realism of the image. (C) 610.6-1991

**hidden line/hidden surface removal** A process of detecting hidden lines and hidden surfaces in an image and removing them from the rendering of that image before it is rendered. (C) 610.6-1991

**hidden surface** A surface in a three-dimensional graphics display image that is not visible because of the presence of surfaces closer to the viewer. (C) 610.6-1991

**hierarchical** Pertaining to a hierarchy, as in a hierarchical database or a hierarchical structure. (C) 610.5-1990

**hierarchical computer network** A computer network in which processing and control functions are performed at several levels by computers suited for the functions performed.

(C) 610.7-1995

**hierarchical database (A)** A database system that uses tree structures to represent the data. (B) A database in which data are organized into records, known as segments, that represent nodes in a hierarchy or tree structure. *Note*: Within the hierarchy, a subordinate to a given segment is known as its child segment and a superordinate is known as its parent segment. *Synonym*: sequential precedential database. *Contrast*: network database; relational database. (PE) 1150-1991

**hierarchical decomposition (software)** A type of modular decomposition in which a system is broken down into a hierarchy of components through a series of top-down refinements. *See also*: functional decomposition; stepwise refinement. (C) 610.12-1990

**hierarchical direct access method (HDAM)** A database access method for hierarchical databases in which pointers maintain the structure itself as well as the control of the storage and retrieval functions of the database. All records are stored and retrieved using these pointers. *Contrast*: hierarchical sequential access method. *See also*: hierarchical indexed direct access method; hierarchical indexed sequential access method.

(C) 610.5-1990

**hierarchical indexed direct access method (HIDAM)** A database access method for hierarchical databases in which indices access root segments and pointers access dependent segments. *Contrast*: hierarchical indexed sequential access method.

(C) 610.5-1990

**hierarchical indexed sequential access method (HISAM)** A database access method for hierarchical databases in which indices control access to both root and dependent segments.

*Contrast*: hierarchical indexed direct access method.

(C) 610.5-1990

**hierarchical input-process-output** *See*: input-process-output.

**hierarchical level** A member of a linearly ordered set (i.e., hierarchy) of levels, e.g., a number in the range from 0 to 255.

(C/LM) 802.10g-1995